

REMARKS

Claims Rejected under 35 USC §112

The Examiner rejected claim2 under 35 U.S.C. §112, 2nd paragraph as indefinite. The rejection should be overcome by the applicant's amendment in line with the Examiner's suggestion.

Claims Rejected under 35 USC §102

The Examiner has combined Coffee 5,302,523 (April 12, 1994) in an inappropriate §102 rejection. The applicant's attorney believes that the more appropriate rejection would be §103 rejection as the Examiner is combining two articles, not a single article, to present what is alleged to be all of the elements and interrelationships of the claims.

A §103 rejection would be more appropriate. An obvious issue versus an issue of anticipation. However, the Examiner states that in 1994, the Coffee patent, indicated that you could mix (vortexing) for 10 seconds to transform cells. Then the Examiner alleges that Coffee teaches vortexing and that vortex mixers were commonly used in the labs. Of course, the Coffee lab was a 1994 lab as this is when that patent issued; however, the information the Examiner provides on vortexing is not what was available in 1994. Instead the Examiner provides information on what is available for vortexing equipment 11 years later in the Feb 2005 Cole Parmer instrument catalogue. The catalogue was published 4 years after the filing date in the US of this application. In spite of that, the Examiner is combining the two teachings and alleging that the Coffee patent teaches cycles of vortexing. In fact, Coffee does not teach anything cycles and barely mentions the mixing process in this application.

The Examiner is then stating that when these genie vortexors are turned on and until the genie vortexor comes to full speed, the vortexer is subject to a continuum of frequencies of cycle per minute which include both 1000 and 768 cycles per minute listed in the claims.

Once again the applicant's attorney would like to suggest that the Examiner is presenting an obvious argument and not an anticipation argument under §102. And under either

argument the Examiner has not shown that either of these cycles per minute can be reached for more than a tiny fraction of a millisecond.

There is no indication by the Examiner that the range taught in the claims is taught in the art cited. The Examiner is simply suggesting that at some point certain frequencies are reached. The applicant's attorney does not believe that there is any teaching that the cycles listed in the claims were taught by or anticipated by Coffee with or without the teaching of the 2005 catalogue (which is not prior art). The applicant's attorney requests that the Examiner remove this rejection.

Claims Rejected under 35 USC §103

The Examiner has rejected 1-6 as obvious over Coffee and Cole-Porter instrument Company. The applicant submits that an article from Feb 1 2005 is not prior art to the present invention and can not be used. However, even if the article from Cole was prior to the filing date of the application this combination of teaching does not make the use of the paint shaker as indicated in claim 6 obvious.

In biological labs one of the primary discovery tools is a system called PCR. This helps the researcher identify DNA lysed from cells. The reason that the paint shaker is not obvious choice for shaking cells that are to be preserved and form tissue for plant regeneration is that biotechnology scientists were often using aggressive mixing machines to do the exact opposite of what this invention does. Aggressive shaking of cells resulted in the destruction of the cells such that the cell is destroyed and the DNA material from within the cells could be extracted. Thus the two purposes for using aggressive shaking are at the opposite ends of the spectrum of uses. The entire concept that a paint shaker with its violent shaking activity could be employed with a potentially destructive and piercing whisker to introduce DNA into cells and that these speared cells could and would survive was contradictory to all beliefs of the biotech industry. Thus the use of the paint shaker was not an obvious choice, if anything it was totally counter intuitive to use violence to "save your cells". The Examiner is requested to remove this rejection.

Amendments To Claims

1. (Currently amended) An improved method of introducing a nucleic acid into plant cells comprising the steps of: providing a whisker cocktail comprising (i) at least one cell, (ii) a multiplicity of whiskers and (iii) at least one nucleic acid, and the improvement comprising shaking for less than 10 seconds said whisker cocktail with a shaking motion of less than 2100 cycles per minute and more than 350 cycles per minute so as to create collisions between said whiskers and said plant cells whereby said nucleic acid is introduced into said plant cells.
2. (currently amended) The method according to ~~any of~~ claims 1 including a step of regenerating at least one of said plant cells into a plant comprising said nucleic acid.
3. (previously presented) The method according to claim 2 including a step of using the regenerated plant to produce seed.
4. (original) The method according to claim 1 wherein said cycles per minute are less than 1000.
5. (original) The method according to claim 1 wherein said cycles per minute are approximately 768.
6. (previously presented) A whisker mediated method for transforming a plant cell, said method comprising:
 - (a) providing a whisker cocktail comprising: cells, a multiplicity of whiskers and DNA,
 - (b) contacting said cocktail in at least one vessel adapted to be shaken;
 - (c) placing at least one of such vessels holding the cocktail in a paint mixer machine adapted for shaking the cocktail; and,

(d) shaking with such paint mixer at least one of such vessels wherein said DNA is inserted into at least one of said cells whereby forming a whisker mediated transformed plant cell.

7. (withdrawn) A whisker mediated method for transforming a plant cell capable of being regenerated into a fertile plant, said method comprising:

(a) providing a whisker cocktail comprising: cells, a multiplicity of whiskers and DNA;

(b) shaking such cocktail in at least two of the x axis, y and z axes wherein said DNA is capable of being inserted into at least one of said cells thus forming a whisker mediated transformed plant cell capable of being regenerated into a fertile plant.

8. (withdrawn) The method according to any of claims 1, 6, 7,13,14,18 including the step of regenerating at least one of said plant cells into a fertile plant.

9. (withdrawn) The method according to claim 8 including the step of harvesting seed from the fertile plant.

10. (withdrawn) The method according to claim 9 including the steps of planting the seed which form plants and selecting new seed from the plants and repeating the selection steps.

11. (withdrawn) The method according to claim 10 including the step of repeating the selection steps of claim 10.

12. (withdrawn) The method according to claim 11 including a step of using the seed or progeny which has an ancestor of the plant in claim 11, wherein said seed or progeny comprise through inheritance the nucleic acid directly or indirectly from the ancestor plant.

13. (withdrawn) A whisker mediated method for transforming a plant cell, said method comprising:

- (a) providing a whisker cocktail comprising (i) at least one cell, (ii) a multiplicity of whiskers and (iii) at least one nucleic acid, and
- (b) shaking such cocktail with means for shaking comprising a axis of rotation, wherein said shaking means extends such cocktail not less than 1.3 cm radially from said axis of rotation wherein said DNA is capable of being inserted into at least one of said cells thus forming a whisker mediated transformed plant cell.

14. (withdrawn) An improved whisker mediated method for transforming large volumes of plant cells in each respective whisker mediated shaking step, said method comprising:

- (a) providing a whisker cocktail comprising (i) cells, (ii) a multiplicity of whiskers weighting not less than .032 grams and (iii) at least one nucleic acid;
- (b) shaking such cocktail in a single whisker mediated transformation step wherein said DNA is capable of being inserted into said large volumes of plant cells thus forming whisker mediated transformed plant cells.

15. (withdrawn) A method according to claim 14 wherein the volume of cells is at least 35 ml.

16. (withdrawn) A method according to claim 14 wherein the volume of cells is at least 70 ml.

17. (withdrawn) A method according to claim 14 wherein at least a portion of said whisker cocktail is located in a vessel and said vessel contains not less than 3 ml of cells.

18. (withdrawn) A method according to claim 14 wherein the volume of cells is at least 105 ml.

19. (withdrawn) A whisker mediated method for transforming a plant cell, said method comprising:

contacting at least one cell with a multiplicity of whiskers and with DNA whereby forming a whisker cocktail;

shaking such cocktail for at least 1 seconds wherein said DNA is capable of being inserted into at least one of said cells thus forming a whisker mediated transformed plant cell.

20. (withdrawn) A method according to claim 14 wherein the cocktail moves through a nonrandom pathway in the axes.